Prefatory Note

The present thesis deals with the palynostratigraphical investigation of Rajpardi lignite, Broach District; Gujra dam section cutting and Akri lignite, Kachchh District, Gujarat State, western India.

In the first chapter general geology of Rajpardi, Gujra dam section cutting and Akri lignite have been dealt with. The age controversy of Rajpardi lignite has been pointed out and the stratigraphical succession has been presented in the tabular form. The pertinent information about the samples and process of maceration followed here have also been narrated in this chapter.

The second chapter includes the systematic description of the palynomorphs recovered from the Rajpardi lignite. In all 38 dispersed spore-pollen genera and 42 species have been described, out of which 7 genera and 6 species belong to fungi, 7 genera and 4 species to pteridophytes and 24 genera and 32 species to angiosperms. The fungal and angiospermic pollen are commonly found whereas the pteridophytic spores are rare in the assemblage.

The third chapter deals with the systematic description of the spores and pollen grains obtained from the Gujra dam section cutting and Akri lignite. In Gujra dam section, both the pteridophytid spores and the angiospermic pollen are well represented and in Akri the pteridophytic spores are in dominance.
The discussion part of the thesis is in the fourth chapter. The palynological assemblage from the Rajpardi lignite has been discussed first. The species encountered in the lignite has been listed and every sample has been quantitatively assessed. On the basis of dominance of spore-pollen taxa, the Rajpardi assemblage has been divided into 3 palynological cenozones in the ascending order viz. Polyzalacidites rhomboidus, Inapertisporites kedvesii and Arengapollenites achinatus cenozones.

The Gujra dam section cutting and Akri lignite palynological assemblages have also been separately assessed and they have been equated with Lygodiumsporites lakiensis Cenozone of Kar (Ms.) The comparison of Rajpardi lignite, Gujra dam section cutting and Akri lignite assemblages has also been dealt with.

The age of the Rajpardi lignite has been assigned as Lower Eocene on the basis of palynology and the evidences have been provided for this contention. The condition of deposition of the Rajpardi lignite has been inferred at the last part of the discussion.